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JAMES H. B. BLAND,
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STATED MEETINGS

Of The American Entomological Society will be held at 7.30 o'clock P. M., on the fourth **Thursday** of each month, excepting June, July, August, November and December, and on the third Thursday of November and December.

Communications on observations made in the course of your studies are solicited; also exhibits of any specimens you consider of interest.

The printer of the NEWS will furnish reprints of articles over and above the twenty-five given free at the following rates: One or two pages, twenty-five copies, 35 cents; three or four pages, twenty-five copies, 70 cents; five to eight pages, twenty-five copies, $1.40; nine to twelve pages, twenty-five copies, $2.00; each half-tone plate, twenty-five copies, 30 cents; each plate of line cuts, twenty-five copies, 25 cents; greater numbers of copies will be at the corresponding multiples of these rates.

ENTOMOLOGICAL NEWS

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On the Biology of the Parasitic Bees of the Genus Coelioxys (Hymen., Megachilidae).

By S. GRAENICHER, South Miami, Florida.

Although this genus is well represented in both hemispheres, it is surprising how little is known concerning the life history of these bees that pass their larval stages in the nests of host-bees belonging to the genera *Megachile, Chalicodoma, Anthophora* and *Tetralonia.*

In a previous paper the writer[1] described the methods of the oviposition of the adults, and the habits and peculiar structures of the first stage larvae of two species of *Coelioxys* found in the nests of leaf-cutter bees (*Megachile*). Later on, while still a resident of Wisconsin, he had an opportunity to study the activities of two additional species of *Coelioxys,* and thereby gained some more information on the subject.

In 1897 Ferton[2] published the results of some observations made in France on two species of *Coelioxys* ovipositing in the nests of leaf-cutter bees. The mode of oviposition employed by one of these species agrees closely with what the writer has seen in the species of our fauna observed so far. The second species studied by Ferton shows an entirely different mode of oviposition, as will be discussed in the course of this paper.

In his recent work on the "Bees of Europe"[3] Friese informs us of having found an egg of *Coelioxys rufescens* Lep. in the nest of *Anthophora fulvitarsis* Br. suspended from the roof of the cell, and this constitutes still another method of

[1] S. Graenicher. Some observations on the life history and habits of parasitic bees. Bull. Wis. Nat. Hist. Soc., Vol. 3, pp. 153-167. 1 pl., (1905).

[2] M. Ch. Ferton. Nouvelles observations sur l'instinct des hyménoptères gastrilégides de France et de Corse. Actes Soc. Linn. Bordeaux, Vol. 52, pp. 11-13, plate 4, (1897).

[3] H. Friese. Die europäischen Bienen (Apidae) 1923.

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oviposition met with in *Coelioxys*. He does not mention the information given by Ferton.

Both Ferton and Friese have seen larvae of *Coelioxys* in advanced stages of development, but they did not come across the very characteristic first stage larvae.

Referring to parasitic bees in general, whereby he mentions *Stelis, Coelioxys, Melecta* and *Nomada* as examples, Friese says that at first two eggs are present in a cell of the hostbee (egg of parasite and egg of host), but that at a later period only the larva of the parasite is found. He goes on to say that it is usually assumed, that the egg of the parasite hatches earlier than that of the host, and that the parasite consumes the bee-bread more rapidly, thereby causing the death of the host larva by starvation. In making these statements he does not consider the fact, that, so far as *Stelis* is concerned, it had been shown by Verhoeff[4] over thirty years ago, that the larva of the European species *Stelis minuta* Nyl. attacks and kills the larva of *Osmia leucomelaena* Ky. in much the same manner as in this country the *Stelis* larva kills the *Alcidamea* larva, as reported by the writer.

Nest of Leaf-cutter Bees (Megachile).

The methods employed by these bees in constructing their thimble-shaped cells with circular or oval pieces cut from leaves, are well known. There are several layers of round pieces at the bottom of the cell, and longer pieces forming the wall. After the cell has been half-filled with the food supply for the larva (bee-bread), an egg is placed on top of it, and the cell closed with circular pieces. The nests of some of the species are found in the ground, of others in dead branches on the ground, and in still others, in excavated pithy stems. The cells are placed end to end.

Mode of Oviposition of Coelioxys.

Ferton informs us how *Coelioxys quadridentata* L. (he calls it *C. conica*, but this is a synonym) pierces the inner wall of the cell of *Megachile circumcincta* K. with its pointed abdomen,

[4] C. Verhoeff. Zool. Anz. Vol. 15, p. 51, (1892).

and pushes its egg into the slit thus formed. The posterior portion of the egg lies between the innermost and the next layer of leaf-fragments, while the anterior pole remains inside of the cell in contact with the bee-bread. Ferton pictures a cell of the hostbee with 3 eggs of the parasite, as it appears after all but the innermost layer of leaf-fragments have been removed. (Pl. 4, fig. 5).

The ovipositing habits of two species of *Coelioxys* of the Wisconsin fauna, viz. *C. lucrosa* Cr., a parasite of *Megachile vidua* Sm. (not *M. addenda*, as it was called at the time) and of *C. rufitarsis* Sm., a parasite of both *M. latimanus* Say. and *M. melanophaea* Sm., are identical with those of the European species considered above. The same may be stated for the two following species of *Coelioxys* studied in Wisconsin; *C. ribis* Ckll., a parasite of *M. wootoni* Ckll., and *C. modesta* Sm., a parasite of *M. infragilis* Cr.

That this is not the only method of oviposition employed by species of *Coelioxys* is shown by Ferton's[5] account of the habits of *Coelioxys afra* Lep., a parasite of *Megachile albipila* Pérez. Its egg is found on top of the bee-bread, leaning up against the front end of the host's egg. The manner in which *Coelioxys rufescens* Lep. suspends its egg from the top of the cell of *Anthophora fulvitarsis Br.*, as reported by Friese, points to a third mode of oviposition within the genus *Coelioxys*.

Behavior of the Adult Parasite at the Nest.

On one occasion the writer came across a female of the parasitic bee *Argyroselenis minima* Robt. flying along a clay bank in search of a nest of its hostbee, *Colletes eulophi* Robt.[6] After having discovered such a nest, it spent much of its time studying the surroundings of the nest, at first inspecting the immediate neighborhood, and then gradually taking in the more remote parts of the territory, returning to the nest from time to time, and entering it. It made repeated visits to the

[5] M. Ch. Ferton. Actes Soc. Linn. Bordeaux, Vol. 48, (1896). Also Vol. 52, pl. 4, figs. 9 and 10.

[6] S. Graenicher. A contribution to our knowledge of the visual memory of bees. Bull. Wis. Nat. Hist. Soc., Vol. 4, pp. 138-142, (1906).

nest for several days, and showed as much familiarity with the site of the nest as the hostbee itself.

A female *Coelioxys* behaves in exactly the same manner. The methods employed by such a parasitic bee, after it has found a nest, are identical with those exhibited by the hostbee from the time it has started the construction of a nest. By a thorough study of the surroundings, the latter is enabled to locate its nest without any loss of time on its return. There is a highly developed memory for visual impressions in the hostbee, and this seems to be just as well developed in the parasitic bee.

When more than one female *Coelioxys* has discovered the same nest of a host, each one of them may come to the nest to deposit its egg. Ferton saw four females of *Coelioxys quadrinotata* appear at the nest of *Megachile circumcincta* at about the same time. At a nest of *Megachile wootoni,* the writer found three specimens of *Coelioxys ribis* in attendance. Two of them (a larger and a smaller one) visited the nest. At first the small one entered, and stayed inside for a few minutes. During this time the larger one entered, but on finding the nest occupied, reappeared at once, and took up a position on a small plant nearby. After the small one had left, the hostbee arrived with a load of pollen, deposited it in the nest, and departed. Thereupon the larger *Coelioxys* paid a visit to the nest.

There are no signs of hostility between these rival parasites, either at the nest or when two of them happen to meet when on the wing. In the latter case, the writer has seen them flying around each other, face to face, in a playful way.

The Egg of Coelioxys.

In view of the foregoing, we are not surprised to find more than one egg of the parasite in the same cell. Ferton saw as many as three eggs of *Coelioxys quadrinotata* in a cell of *Megachile circumcincta.* There were five eggs of *Coelioxys ribis* in a cell of *Megachile wootoni,* and this is the largest number ever found by the writer in a single cell.

The eggs of the parasite are placed in the lower portion of

the cell wall, mostly near the base. Those of the various species of *Coelioxys* seen by the writer differ considerably in shape and size from those of their hosts. The egg of *Coelioxys* is comparatively shorter than that of *Megachile* and broadened out at its cephalic pole. The duration of the egg stage, as observed in both *Coelioxys rufitarsis* and *C. ribis,* amounts to about four days.

(To be continued.)

Two New Species of Diptera from North Carolina (Tachinidae, Conopidae).

By C. S. Brimley, Entomology Division,
N. C. Dept. Agriculture.

Neophyto olmaba n. sp. (Tachinidae).

Much like *N. setosa* Coq. but differs from it in the same way that *Phytodes hirculus* Coq. does; namely in the absence of true discals on abdominal segments 1-3, in having the apical cell long petiolate, and in the posterior crossvein being nearer to the small crossvein than to the bend of the fourth vein. From the description of *P. hirculus* Coq., it differs in having three sternopleurals instead of two, in having no golden color on the face, and in the wings being hyaline or tinged with yellow toward the costa. The middle pair of marginals on segment three are out of line with the others, being further away from its posterior margin. Length 6 to 9 mm.

Type Female, Sunburst, North Carolina, May, 1912, F. Sherman. Five paratypes are from Raleigh, N. C., C. S. Brimley, taken on April 30, 1923, Aug. 23, 1921, and May 14, 1926; these are smaller than the type and also appear to be females, all having orbital bristles. Type and paratype will be deposited in the U. S. National Museum.

Conops limuva n. sp. (Conopidae.)

♀ length about 12.5 mm. Second antennal joint about one and one-fourth length of third (including style), small crossvein a little beyond middle of discal cell, about opposite tip of auxiliary vein; ventral plate of about uniform thickness for apical two-thirds or three-fourths, somewhat widened at the base.

Cheeks, face, sides of front, lower part of back of head and

narrow posterior orbits yellow; vertex, middle of front to antennae and greater part of back of head, black or dark brown, the middle of vertex behind tinged with yellowish. Proboscis and antennae black.

Thorax and abdomen black or dark brown, except for two short yellow-pollinose stripes on thorax in front, a broken vertical stripe on pleura to base of mid coxa, a transverse band on base of metanotum with a vertical extension down each side of same, narrow apical bands on tergites 1-3, broad apical band on 4, and most of rest, all yellow pollinose. Legs mostly yellow pollinose, apical half of hind tibiae and all tarsi black, all the femora darkened above, claws and pulvilli yellow.

The wings have the costal cells anterior to the first vein yellow; from the first vein and the costa beyond the tip of first vein to the third vein the wings are blackish, this color extending to the very tip of the third vein but not crossing it. Posterior part of wings abruptly hyaline, but with dusky edging in discal cell to posterior branch of fifth vein and also a dusky streak in front of fifth vein in third posterior cell.

Differs from all American *Conops* known to me except *brachyrhynchus* in having second antennal joint longer than third and from this and all others known to me by the wings being dark down to the third vein only, then abruptly hyaline behind it.

Type and only specimen, Raleigh, North Carolina, June 29, 1926, C. S. Brimley, in the North Carolina Department of Agriculture Collection.

Notes on North Carolina Hymenoptera.

By C. S. Brimley, Entomology Division,
N. C. Dept. Agriculture.

I. Key to the Species of Elis Fabricius (Scoliidae) found in North Carolina (including a New Species from South Carolina.)

1. Females. ..... 2.
   Males. ..... 8.
2. Propodeum smooth on sides, (pronotum with a pale band behind) ..... 3.
   Propodeum striate on sides. ..... 4.
3. Two yellow spots on front of pronotum, scutel with yellow, neck yellow above. (Southern Pines and Aberdeen, N. C., two, Sept., Oct.). *propodealis* Rohwer

No yellow spots on front of pronotum, scutel black, neck not yellow above. (Eastern and central North Carolina, June to October *caroliniana* Panzer

4. Pronotum with a pale band behind, scutel marked with yellow. ..... 5.
Pronotum without a pale band behind, scutel black. ... 6.

5. Pronotum densely and coarsely punctate above, tibiae and tarsi reddish yellow. (Kittrell, N. C., July, one). *floridanus* Rohwer
Pronotum but little punctate above, tibiae and tarsi black or nearly so. (Southern Pines, August, three). *quinquecincta* Fabr.

6. No pale markings on the abdomen beyond the second segment. (Charleston, S. C., July, four). *berlyi* n. sp.
Segments 1-4 or 1-5 with pale markings. ..... 7.

7. Abdomen above with lateral spots only, venter black, stripe on each side of propodeum undivided or absent. (Whole State, June to October). *obscura* Fabr.
Abdomen above with the lateral spots on some of the segments nearly or quite uniting to form crossbands, venter with lateral yellow spots, spot on each side of propodeum deeply V-shaped. (Whole State, June to October). *interrupta* Say

8. A yellow spot on each side of last abdominal segment. (Raleigh and Kittrell, N. C., July, two). *atriventris* Gahan
No such spots present. ..... 9.

9. Hind tibiae mainly yellow, hind femora yellow at apex and on apical half above, no vertical groove through yellow spot below base of wing. *caroliniana*
Hind tibiae mainly dark, hind femora black on sides to apex, the yellow limited to sa stripe above. ..... 10.

10. Hind tibiae mostly black, stripes on postero-lateral angles of propodeum usually entire outwardly, yellow lateral spots present on ventrals 2-6. Groove on yellow spot below wing feeble or absent. Larger. *obscura*
Hind tibiae dusky or dull reddish, propodeal stripes concave or emarginate outwardly, sixth ventral usually unspotted, groove on yellow spot below wing-base well developed. Smaller. *interrupta*

Note. Determination of the last three species is based on the examination of a number of specimens from Raleigh, where these species are all common and are the only ones of which females have been taken.

Elis berlyi n. sp. ♀. Black with the following white: very narrow upper anterior orbits, post-scutellum, spot below base of wings, broad band on first abdominal segment and large spot on each side of second. Pronotum coarsely and densely punctate above, propodeum striate on sides and behind. Length 18-20 mm.

Sharply distinguished from all species known to me by the absence of pale markings on the abdomen posterior to the second segment.

Type, female, Charleston, South Carolina, July 23, 1926, J. A. Berly, collector; *paratypes,* three females, same data. One paratype is retained for the collection of the North Carolina Department of Agriculture, the others and the type are returned to Professor Franklin Sherman, State Entomologist, Clemson College, South Carolina, whom I wish to thank for the privilege of examining and describing this form.

II. Description of a New Species of Cerceris. (Cerceridae.)

Cerceris natallenus n. sp. Black with the following yellow or reddish yellow: broad anterior orbits reaching a little above base of antennae, clypeal process except base but including lamellae, front of mandibles except tips, under-side of scape and of basal two-thirds of flagellum, tibiae and tarsi and extreme apex of femora, broad even apical band on dorsum of second abdominal segment, and very fine apical margins to ventral segments 2-6.

Sculpture about as in *compacta,* except that the enclosure instead of being rugose is mainly smooth with a narrow groove down the center and incomplete coarse oblique striae on the sides, the mesepimeron also is coarsely transversely striate on upper third and smooth on the remaining portion. Clypeal process broader and more arched than in *compacta,* the two lamellae completely separated. Length 15 mm.

Type female, Lagrange, North Carolina, August 5, 1924, T. B. Mitchell, in the collection of the North Carolina Department of Agriculture. Two other females and a male agree in the sculpture of the enclosure and of the mesepimeron, but present some color differences as follows: the first a female from Bostic, N. C., July 7, 1921, T. B. Mitchell, agrees with the type except that the hind tibiae are dark above and yellow beneath, length 13 mm.; the second a female, Willard, N. C.,

July 15, 1925, C. S. Brimley, agrees in structure with the foregoing, but the color of the head more or less, of the propodeum and of the first and second abdominal segments is red, and the legs are reddish, except that the mid and hind tibiae are dark above; the first abdominal segment has a transverse apical row of three yellow spots above, length 13 mm.; finally a male from Willard, N. C., July 15, 1925, C. S. B., agrees with the type in color, but has the hind tibiae dark above as in the Bostic specimen, and the scutellum has a broad yellow band partly divided in the middle.

In Banks' key to eastern *Cerceris* this runs to *compacta*, from which it may be distinguished by the different sculpture of the enclosure and mesepimeron as well as by differences in color, while from *flavofasciatus* (of which Dr. Rohwer tells me it is probably a variety) it may be distinguished in the female sex at least, by the unmarked scutellum, and in both sexes by the predominantly black hind femora.

A New Syrphid (Diptera) from Guatemala.

By David G. Hall, College of Agriculture, University of Arkansas.*

A new species of *Mesogramma* from Guatemala is described herewith from a series of specimens in the collection of J. S. Hine.

Mesogramma flaviplura sp. nov.

Length 8-9 mm. Face, dark brownish black, dusted with yellow along sides. Antennae, including arista, yellowish brown, third joint being somewhat silvery pollinose. Frontal triangle of male rather narrowed above, almost black, with black colored pile, dusted with whitish pollen a little before ocelli. Front of female blackish, shining and thickly dusted along sides with yellow pollen starting just below ocelli.

Median cinereous stripe of thorax moderately distinct, the rest of thorax dark blackish brown, lightly clothed with dark pile. A light yellow spot on mesopleurae, thinly clothed with light pile. Scutellum unicolorous with thorax, lighter on margin. Halteres yellowish white.

Abdomen of male of the same color as thorax, dark-brown metallic, without an apparent design or pattern. Abdomen of the female similar to that of male, except a series of opaque

*Research Paper No. 54, Journal Series, University of Arkansas.

spots that are hard to define. First segment shining, second with a transversal spot extending across the approximate center, not reaching lateral margins; third segment with a more extensive spot showing a tendency to break into a series of smaller spots, a large one on each side, easily contained within the borders of the segment and connecting somewhat with each

Pattern on abdomen of female Mesogramma flaviplura.

other, across a pair of median lines. Spots on the fourth segment distinctly separated, a pair on each side and a pair of median lines or spots. Fifth segment with a pair of oblique spots extending toward median posterior, a single median spot beginning at the anterior margin, extending back about three-fourths the distance toward the posterior margin, taking the place of the median lines on the preceding segments, a small triangular median spot on posterior margin. Fifth segment and hypopygium shining metallic brownish black.

All femora black, with dark pile, knees whitish. Hind tibia black, with dark pile, remaining tibia white, with light colored pile. All tarsi dark, increasingly so toward pulvillae.

Wings, smoked a deep blackish brown, darker along margin.

A series upon which this species is based was collected by Prof. Hine during the months of January, February and March, 1905, at Puerto Barrios, Guatemala, and are in his private collection at Columbus, Ohio.

Type—Female in the collection of Prof. Hine.

ENTOMOLOGICAL NEWS

PHILADELPHIA, PA., OCTOBER, 1927.

Summary of Votes in Recent American Referendum on Dr. Poche's Three Propositions to Change the International Rules of Zoological Nomenclature.

Referring to the recent referendum on Dr. Poche's (Vienna, Austria) three propositions in regard to the Rules of Zoological Nomenclature, the undersigned has the honor to report to the zoological profession the following results of the ballot:

Poche's proposition I: 8 votes for; 549 votes against.

Poche's proposition II: 4 votes for; 550 votes against.

Poche's proposition III: 4 votes for; 551 votes against.

A detailed report will be made to the Tenth International Zoological Congress (Budapest) and the undersigned unreservedly accepts the unambiguous results of this referendum as definite instructions from the profession in the United States for him to cast his vote (in the Congress as delegate, and in the Commission as member) against all three propositions.—C. W. STILES, Professor of Zoology, U. S. Public Health Service.

Personals.

PROF. J. G. NEEDHAM wrote from Ithaca on July 14, 1927, "I am leaving to-night for a year in China."

MR. HAROLD C. HALLOCK has been transferred from the Japanese Beetle Laboratory at Riverton, New Jersey, to Westbury, Long Island, New York, for research work on the Asiatic beetle, *Anomala orientalis*.

On July 13, MR. J. A. G. REHN, recording secretary and associate curator of entomology of the Academy of Natural Sciences of Philadelphia, set off on a second collecting trip in Costa Rica, his first visit to that country having been made four years ago. The present expedition is planned to visit especially Pozo Azul in the Pacific lowlands, the high south central mountains of Santa Maria Dota, the higher central volcanos of Irazú and Turrialba and, in the Atlantic lowlands,

Talamanca and Santa Clara. He expects to return to Philadelphia near the end of September.

PROF. T. D. A. COCKERELL wrote from Leningrad, Russia, July 11, 1927: We arrived here yesterday on the S.S. Soviet (COBET in Russian) from London. On the way had three days at Bremen and saw much of J. D. Alfken, who has retired from teaching and now devotes his whole time to the study of bees. Was present at a meeting of the Bremen Entomological Society. Much kindness shown to us by all the people in Bremen and also here in Leningrad. To-day we saw the entomological collections of Academy of Sciences, beautifully arranged and cared for, the largest series of *Bombus* in the world, I think. They wish to exchange insects and have much to offer in all orders. Fortunately the collections were not at all damaged during the revolution. We expect to start for Irkutsk, a journey of eight days, to-morrow. [See the NEWS for February last, page 57, for an outline of Prof. Cockerell's proposed journey.—ED.]

DR. C. H. T. TOWNSEND has been placed in charge of the Peruvian Agricultural Institute of Parasitology. (Jour. Econ. Ent.)

At the meeting of the Entomological Society of France, March 9, 1927, Prof. W. M. WHEELER was awarded the Dollfuss prize of 300 francs for his work *Les Sociétés d'Insectes. Leur origine. Leur evolution.*

Entomological Literature

COMPILED BY E. T. CRESSON, JR.

Under the above head it is intended to note papers received at the Academy of Natural Sciences, of Philadelphia, pertaining to the Entomology of the Americas (North and South), including Arachnida and Myriopoda. Articles irrelevant to American entomology will not be noted; but contributions to anatomy, physiology and embryology of insects, however, whether relating to American or exotic species will be recorded.

The numbers in **Heavy-Faced Type** refer to the journals, as numbered in the following list, in which the papers are published.

All continued papers, with few exceptions, are recorded only at their first installments.

Papers of systematic nature will be found in the paragraph beginning with (N). Those pertaining to Neotropical species only will be found in paragraphs beginning with (S). Those containing descriptions of new forms are preceded by an *.

For records of Economic Literature, see the Experiment Station Record, Office of Experiment Stations, Washington. Also Review of Applied Entomology, Series A, London. For records of papers on Medical Entomology, see Review of Applied Entomology, Series B.

Papers published in the Entomological News are not listed.

4—Canadian Ent., Guelph. **5**—Psyche, Cambridge, Mass. **8**—Ent. Monthly Mag., London. **9**—Entomologist, London. **10**—Proc., Ent. Soc., Washington. **11**—Deutsche Ent. Zeitschrift, Berlin. **12**—Jour. of Economic Ent. **14**—Ent. Zeitschrift, Frankfurt a. M. **17**—Ent. Rundschau, Stuttgart.

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COLEOPTERA.—*Dudich, E.—Die Cephennium-larven und ihre beziehung zu der insektenordnung Anisosphaeridia. (131, xxiii, p. 85-87.) **Ferris & Nissen.**—The larva of a species of the Cassididae. (55, iii, p. 169-172, ill.) **Heikertinger, F.**—Ueber fühleranpassungen bei myrmekophilen käfern. (45, xxii, p. 124-147.) **Kirchner, H.**—Biologische studien über Carabus cancellatus. (122, vii, p. 489-534, ill) **Kolbe, H.**—Die einstammigkeit der Paussiden und die primitiven gat-

tungen dieser myrmekophilen coleopterenfamilie. (Zool. Anz., lxxii, p. 205-218.) **Mutcher, A. J., and Weiss, H. B.**—The Dermestid beetles of New Jersey. (N. J. Dept. Agric. Circular No. 108, Trenton. 30 pp., ill.) [Keys to genera and species]. **Potts, S. F.**—The alimentary canal of the Mexican bean beetle. (**130,** xxvii, p. 127-137, ill.) **Urban, C.**—Ueber entwicklung and larven einiger Rhinoncus-arten. (**131,** xxiii, p. 49-58, ill.) **VanDyke, E. C.**—Pterosticus horni. (**55** iii, p. 196.)

(N) ***Blaisdell, F. E.**—Miscellaneous studies in the Coleoptera No. 2. (**55,** iii, p. 163-168.) ***Brown, W. J.**—Four new species of Onthophagus. (**4,** lix, p. 128-133.) **Didier, R.**—Quelques modifications à la classification des Lucanides. A propos du genre Cyclommatus. (**25,** 1927, p. 101-103.) **Everly, R. T.**—A check list of the Carabidae of Columbus, Ohio, and vicinity. (**130,** xxvii, p. 155-156.) ***Fall, H. C.**—New Coleoptera XII. (**4,** lix, p. 136-141.) ***Hardy & Preece.**—Further notes on some species of Cerambycidae from the southern portion of Vancouver Island and B. C., with descriptions of some new varieties. (**55,** iii, p. 187-193.) ***Van Dyke, E. C.**—The species of Amphizoa. (**55,** iii, p. 197-198.)

(S) ***Kleine, R.**—Novos generos e especies da fam. Brenthidae da zona neotropica. (Rev. Mus. Paulista, xv, p. 421-481, ill.) ***Melzer, J.**—Longicorneos do Brasil, novos ou pouco conhecidos. (Rev. Mus. Paulista, xv, p. 137-204, 561-528, ill.) ***Pic, M.**—Nouveaux coléoptères exotiques. (**25,** 1927, p. 139-140.) ***Pic, M.**—Nouveaux Coléoptères exotiques. (**153,** 1926, No. 6, pp. 354-359.) **Pinto da Fonseca, J.**—Um parasita novo do cafeeiro "Corthylus affinis". (Rev. Mus. Paulista, xv, p. 583-590, ill.)

HYMENOPTERA.—Combes M.,—Sur la "repugnance des fourmis a se laisser choir" etudiée par Sir John Lubbock. (**144,** Xe serie, X, fasc. 2, pp. 223-231.) **Dimitrowa, A.**—Untersuchungen über die beziehung zwischen tracheen und adererlauf im hymenopterenflügel. (**122,** vii, p. 694-739, ill.) **Donisthorpe, H. St. J. K.**—Gynandromorphism in Ants. (**35,** i, p. 92-93.) **Frison, T. H.**—The fertilization and hibernation of queen bumble-bees under controlled conditions. (Bremidae). (**12** xx, p. 522-526.) **Salt, G.**—The effects of Stylopization on aculeate Hymenoptera. (**133,** vol. 48, no. 1, pp. 223-331, ill.) **Strand, E.**—Verzeichnis der Hymenoptera, die bis zum jahre 1926 beschrieben wurden in den arbeiten. (**14,** xxxxi, p. 112-116.) ***Viereck, H. L.**—A preliminary revision of some Charopsinae, a sub-family of Ichneumonidae. (Trans, R. Soc. Can., xx, (V), p. 173-186.)

(N) ***Cockerell, T. D. A.**—Northern types of insects in Peru.) (**9,** lx, p. 158-159.) ***Cockerell, T. D. A.**—Bees of the genera Agapostemon and Augochlora in the collection of the California Academy of Sciences. (**55,** iii, p. 153-162.) **Gahan, A. B.**—Four new chalcidoid parasities of the pine tip moth, Rhyacionia frustrana. (Jour. Agric. Res. xxxiv, p. 545-548.) ***Huber, L. L.**—A taxonomic and ecological review of the N. A. chalcid-flies of the genus Callimome. (**50,** lxx, Art. 14, 114 pp., ill.) ***Isensee, R.**—A study of the male genitalia of certain anthidiine bees. (An. Carnegie Mus., xvii, p. 371-384, ill.) **Plath, O. E.**—The natural grouping of the Bremidae (Bombidae) with special reference to biological characters. (**101,** lii, p. 394-410, ill.)

(S) ***CockerellT. D. A.**—Megachilid bees from Bolivia collected by the Mulford biological expedition. (**50,** lxxi, Art. 12, 22 pp.) ***Masi, L.**—Descrizione di una nuova specie di Trigonura (Chalcididae). (**27,** lviii, p. 21-24.)

SPECIAL NOTICES.—Diptera Danica.—Genera and species of flies hitherto found in Demark. By W. Lundbeck. Part VII, Platypezidae, Tachinidae. This monograph (of 560 pp. ill.) of the Danish species of these families include some species found in North America. It is in English, and should be useful to American dipterological taxonomists.

A GUIDE TO THE STUDY OF FRESH-WATER BIOLOGY. With special reference to Aquatic Insects and other Invertebrate Animals. By JAMES G. NEEDHAM, Ph. D., Litt. D., Professor of Limnology in Cornell University, and PAUL R. NEEDHAM, M. S., Instructor in the same. 1927. The American Viewpoint Society, Inc. New York and Albany. 14x21.5 cm. 88 pp., 24 pls., 8 text figs.—This little book is intended to make identification and recognition of freshwater non-vascular plants and invertebrates easier and quicker by condensed keys, tables and pictures. Orders, families or genera, but not species, are illustrated. The arthropods treated in keys and tables are the orders of aquatic insect larvæ; nymphs of Plecoptera (pl. 1), Ephemerida (pls. 2, 3), and Odonata (pls. 4-7); adults of Hemiptera (pl. 8) and Coleoptera (pl. 13, in part); larvae of Trichoptera (pl. 13, in part, pl. 9, their "houses"), Coleoptera (pl. 10), Tipulidae (pl. 11), Sialididae and Hemerobidae (pl. 13, in part) and orders of Crustacea (pls. 14, 24). Part II, pp. 64-88, is composed of a description of collecting methods, apparatus and equipment and directions for twenty-five prac-

tical exercises in freshwater biology. The key to the orders of aquatic insect larvae is the same, although rearranged, as that in the senior author's chapter on aquatic insects in Ward and Whipple's *Fresh Water Biology,* but the others are enlarged and considerably different. The illustrations, chiefly outline figures, are much more numerous than in that chapter, and have been copied from many sources. The whole is a very compact pamphlet in flexible covers, convenient and handy.—P. P. CALVERT.

DIE GOLDWESPEN EUROPAS. von Dr. W. TRAUTMANN, Lautawerk. Published by the author, 1927. Paper bound. 194 pages; 4 plates (2 colored).—This work is evidently a careful taxonomic study of the European species of the family Chrysididae, which will supplant, for the field covered, larger and less critical works. The introduction is brief and includes a good account of the morphology of the group as well as other general information. In its larger aspects, the classification follows Bischoff (Genera Insectorum, fascicle 151, 1913). In the genus *Chrysis,* the usual subdivisions, *Holochrysis, Gonochrysis,* etc., are used by Trautmann as "Hilfsgenera", with the admission that they are extremely unnatural groups. As in most works treating European cuckoo wasps, color is extensively used in keys and descriptions, although the author finds all characters, with the exception of mouthparts and external genitalia, subject to variation. Color, though not always alone, forms a basis for the recognition of numerous varieties or races under many species. *Chrysis ignita* L., probably the most common of European species, has twenty such varieties recognized in this work. Since varietal differences seem to be dependent on the species of host, it is not surprising to find a multiplicity of host species for those Chrysididae which have many varieties. To mention only one example, there are in fact twenty host species accredited to *ignita,* although the presence of a beetle, *Ptosima,* and of the social wasp, *Vespa,* in this list, among solitary wasps and bees, the usual hosts, would seem to need confirmation of early and perhaps unreliable records. The varietal forms have been studied with apparent care, some in their relationship to different hosts. Observations on the habits of American species would probably aid the taxonomist in discovering similar varieties in many of them, otherwise obscure. The two colored plates in this book rather successfully approximate the striking coloration of European species of Chrysididae, but

the figures are too small to be morphologically satisfactory. It may be somewhat confusing to the novice to find the captions of both generic and specific descriptions printed in the same type, and both capitalized.—LELAND H. TAYLOR, West Virginia University.

GENERAL CATALOGUE OF THE HEMIPTERA. G. Horvath, General Editor, H. M. Parshley, Managing Editor. Fascicle I MEMBRACIDAE By W. D. FUNKHOUSER, Ph. D., University of Kentucky. Published by Smith College, Northampton, Mass., U. S. A., 1927. 23 x 15 cm. 12 unnumbered+ 581 pp.—A group of hemipterists met in Cincinnati, in December, 1923, on the occasion of the meeting of the American Association for the Advancement of Science, to discuss the project of a general catalogue of the Hemiptera of the world. Two previous attempts to produce such—by Lethierry and Severin, 1893-6, and by Kirkaldy, 1909, had failed of completion by reason of the deaths of the authors (Lethierry, Kirkaldy). The result of the Cincinnati conference was a Publication Committee of ten members comprising Messrs. Horvath, Parshley and Funkhauser and H. G. Barber, E. Bergroth (since deceased), C. J. Drake, H. B. Hungerford, H. H. Knight, Z. P. Metcalf and J. R. de la Torre Bueno. The present volume is the first fruits of their labors. The unnumbered pages contain an *Avant-propos* by Dr. Horvath (6 pp.), dealing chiefly with details of nomenclature, and a list of the families "to afford a glimpse of the ground that is to be covered, to furnish (as fascicle numbers are added) a general index to the series, and to give a basis for critical discussion and revision." It is stated that "while a large number of authorities have agreed to undertake the cataloguing of their families—in fact many fascicles are now in active preparation —there are some opportunities still open, especially in the Homoptera; and the Editors will take pleasure in answering inquiries on this subject."

Dr. Funkhauser's portion is preceded by an Introduction in which he states that "In cataloguing the Membracidae it has not been deemed advisable to attempt an arrangement which would indicate relationships beyond the subfamilies except in the Smiliinae in which subfamily the genera are grouped into tribes . . . The genera and their species within the subfamilies and tribes are therefore arranged in alphabetical order . . . . [but a list, pp. 5-8, gives] a systematic arrangement of the family which represents the natural sequence

of the groups as well as we can determine it at present . . . . Each species is recorded under each genus in which it has ever been placed, with a reference to the correct location. Thus all known synonyms are cross-indexed and, in addition, all are included in the general index [pp. 547-581] . . . . [Italic] type used to indicate synonyms should prevent confusion in this arrangement . . . . It is hoped that no citations have been omitted which are necessary to make clear the bibliographical history . . . . all references are chronological[ly arranged] . . . . Locality references are arranged as far as possible in a geographical sequence, adjacent localities being placed together . . . . [Trinomials] are given in this catalogue only when it has been impossible to reduce the subspecies to synonymy or to recognize it as distinct."

The catalogue proper occupies pp. 9-512, a Bibliography 513-545. No statement as to the number of species and genera recorded is given. Such works as this are of undeniable necessity and utility, as Dr. Horvath writes, and we hope that the entire number of fascicles will duly and promptly appear. —P. P. CALVERT.

BIOLOGICAL SURVEY OF THE MOUNT DESERT REGION. Conducted by William Procter. Part I. THE INSECT FAUNA with reference to the Flora and other Biological Features. By CHARLES WILLISON JOHNSON, Curator of Insects and Mollusks, Boston Society of Natural History. From the Mount Desert Island Biological Laboratory, Mount Desert Island, Maine. Published by the Wistar Institute of Anatomy and Biology, Philadelphia, 1927. 26 x 18 cm. 247 pp. With a portrait of, and dedication to, Charles Henry Fernald.—This list of insects, 3384 species, is preceded by an Introduction, pp. 9-19, in which evidence is given from several sources of the great richness, in plants and insects, of the approximately 100 square miles which constitute the "Mt. Desert Region". The halophilous insects indicate that there is a wide overlapping of northern and southern forms on this part of the coast. Most of the data furnishing this list were obtained by the author during varying periods in 1918-'23, 1925-'26, although no continuous observations or collections were made throughout any one year. The Diptera number 1197 species, Hymenoptera 692, Lepidoptera 521, Coleoptera 469, Hemiptera 123, Homoptera 121; of the remaining 13 orders no one includes as many as 100 species. The reason for the large number of Diptera "is that the writer, being a dipterist, has been able to

determine the greater part of the species collected. The Hymenoptera would probably prove as numerous if all of the species could be determined." There is an alphabetical index to genera and subgenera. This work will be of great value in the study of the distribution of North American insects.—P. P. CALVERT.

MORPHOLOGY AND MECHANISM OF THE INSECT THORAX. By R. E. SNODGRASS, U. S. Bureau of Entomology. Smithsonian Miscellaneous Collections, Vol. 80, No. 1. 108 pp., 44 text-figs. June 25, 1927.—In this excellent memoir, Mr. Snodgrass has returned to a subject on which he has already published extensively. The present essay treats of the fundamental structure of an arthropod segment, the elemental structure of a thoracic segment, the special structure of a wing-bearing segment, the wings and the mechanism of flight and the legs and their muscles. The sclerites are, of course, described and interpreted, especially in relation to the muscles. The thorax of the Protura is given much attention as a source of comprehension of the insectan thorax. The trochantin is held to have played an important rôle in primitive insects, although now becoming obliterated in the higher insects (p. 14). The proximal three segments of the primitive arthropod limb were the subcoxa, coxa and first trochanter; the subcoxal theory, as proposed in this paper, assumes that, in insects, the lateral walls of the subcoxa, becoming flattened out, lost the power of motion and furnished the pleural sclerites of the thorax (pp. 34, 99). These sclerites are described as forming primarily, two arches, one, the eupleural, above the second, or trochantinal, both concentric over the base of the coxa (p. 30). In addition to the descriptive anatomical parts of the text are many considerations and suggestions of interest to others than morphologists. We may mention the view expressed in several places (pp. 14, 27, 28, 29) that the pterygote thorax has not evolved from that of the apterygotes, a review of the number and position of the spiracles (pp. 37-40), the rejection of the idea that the past existence of paranotal prothoracic lobes meant insects with three pairs of wings (p. 44), the correlation of the predominance of either pair of wings (meso-or metathoracic) with the positions of the phragmata (p. 50), the mechanism of the wing-bearing tergum (pp. 56, 66-69), the views that the one-jointed trochanter of most insects is due to a fusion of two trochanteral segments originally corresponding to the basipodite and ischiopodite of crustaceans and chilo-

pods (pp. 80, 93)* that the tarsus, as the propodite of the generalized arthropod limb, was originally a single segment, which became divided and standardized as five segments in adult Pterygota other than the Odonata, so that numbers between one and five may represent either progressive increase or retrogressive loss (p. 81). We may stop with two quotations from the closing pages: "The larvæ of more generalized adults are likely to have acquired many adult characters, while those of more highly specialized adults may be of an earlier ontogenetic stage and, consequently, may retain more primitive characters. . . . . The distinctive character of insects began with the development of the thorax as the locomotor centre of the body . . . " (p. 98).—P. P. CALVERT.

ECONOMIC BIOLOGY FOR STUDENTS OF SOCIAL SCIENCE. By PHILIPPA C. ESDAILE, D. Sc. (Manchester), Reader in Biology in the University of London King's College for Women, Household and Social Science Dept. Part I. Harmful and Useful Animals with 150 illustrations specially prepared by the author. London, University of London Press, Ltd. 1927. 22x14.5 cm., pp. xv, 175. 7s. 6d.—The author says that the two parts of this work are "really a kind of Materia Domestica, a collection of facts concerning certain animals and plants which are, or may be, closely associated with man and his household . . . . so far as I am aware, there is no textbook on Economic Biology for students of Social Science." Insects occupy pp. 50-145, Arachnida pp. 146-155; in addition, the mosquitoes are dealt with on pp. 10-18 in Chapter I, Protozoa. In most cases formal classification and keys are omitted, but the species discussed are grouped under the usual taxonomic orders. Descriptions of the commoner species of household, disease-conveying and beneficial insects (*e. g.*, silk worm, lac insects, parasitic Hymenoptera), their life-histories and the methods of control of the injurious species are given. The details of some of the illustrations are not always accurate (*e. g.*, the chaetotaxy of *Calliphora erythrocephala*, p. 137). The text is interestingly written and the book should be helpful to those for whom it is intended. The final chapter, XIV, is on "The general care of the person and the house" (pp. 156-160), followed by a glossary, pp. 161-167, and an index, pp. 169-175.—P. P. CALVERT.

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*In a letter of Sept. 1, 1927, Mr. Snodgrass writes: "I forgot to mention that in making homologies of leg segments an extra segment, the 'patella,' must be assumed in spiders, *Limulus* and Pycnogonida."

Doings of Societies.

The American Entomological Society.

Meeting of March 24, 1927, at the Academy of Natural Sciences of Philadelphia, Mr. R. C. Williams presiding; thirteen members and visitors were present.

Mr. Enburg was elected to resident membership. An invitation was read, inviting the Society to participate in the 10th International Congress of Zoology to be held in Budapest.

The communication of the evening was given by Mr. Rehn, on the Utah Expedition. Mr. Rehn showed how he and Mr. Hebard had endeavored to further their studies in the distribution of insects, particularly Orthoptera, and to trace geographical variations. The places and methods of collecting were well illustrated.

ODONATA AND GENERAL.—Dr. Calvert exhibited the male type of the dragonfly, *Calopteryx maculata floridana*, the new subspecies recently described by Mr. J. R. Huggins in the *Transactions* of the Society (Vol. 52, pp. 355-364). In this connection he called attention to a passage in Prof. R. Hesse's *Tiergeographie auf ökologischer Grundlage* (Jena, Gustav Fischer, 1924), page 392, translated as follows: "In homoiothermal animals the same species attains a larger size in colder than in warmer localities, or the larger species among those nearly related inhabit the colder climate. This is in sharp contrast to the behavior of the poikilothermal animals, as reptiles and amphibians, which are smaller in colder localities. This statement has been termed Bergmann's Rule after its discoverer and formulator". The paper in which Carl Bergmann laid down this rule is entitled *Ueber die Verhältnisse der Wärmeökonomie der Thiere zu ihrer Grösse*, published in the *Göttinger Studien* von August Bernard Krische at Gottingen in 1847, pp. 598-708. The recent *Union List of Serials in the Libraries of the United States and Canada* mentions only two copies of these *Studien* as being in the United States, one in the library of Columbia University, New York City, the other in the University of Washington, at Seattle. The speaker has not examined Bergmann's article. The

formulation of the facts in regard to the distribution of mammals and birds has, in the United States, usually been associated with the late Dr. J. A. Allen. Allen's essay, *The Influence of Physical Conditions in the Genesis of Species* (Smithson. Rept. for 1905), reprinted from the *Radical Review* of 1877, does not refer to Bergmann or to any other earlier author. The case of *Calopteryx maculata floridana*, a poikilothermal animal, agrees with Bergmann's Rule as above stated.

Meeting of April 26, 1927, in the same place, Mr. Williams presiding; fifteen members and visitors were present.

It was suggested in an informal report of the Collecting Trip Committee that the schedules of the Leidy Microscopical Club be followed.

Mr. Carl Lorup was elected to resident membership.

Mr. Cresson read a notice, in the *Reading Eagle*, of the appointment of Mr. Herman Hornig as curator of the Mengel Collection, recently given to the Reading (Pa.) Museum and Art Gallery by Dr. Levi W. Mengel. It was approved, on motion, that a letter of congratulation be sent to Mr. Hornig.

Mr. Williams appointed a committee of three, Rehn, Calvert and Cresson, Jr., on the subject of American objections to the propositions of Dr. Poche of Vienna, concerning Zoological Nomenclature.

Mr. Williams suggested that the Society sponsor an entomological exhibit, to be held in the Academy and asked members to contribute interesting material.

LEPIDOPTERA.—Mr. Frank M. Jones gave the communication of the evening on "Observations on *Thyridopteryx ephemeraeformis*." Although considerable work has been done on the life history of this insect, the results are somewhat conflicting, especially regarding the possibility of parthenogenesis. The insect was first noted in America in 1767. Mr. Jones' talk was well illustrated by excellent slides prepared by himself, showing various stages of the insect, especially at mating. A vote of thanks was given to Mr. Jones for his interesting communication.

Meeting of May 26, 1927, in the same place, Mr. Williams presiding; eleven members and visitors were present.

Mr. Vernon S. L. Pate was elected to resident membership. According to the recommendation of the committee appointed to consider the letter of Dr. C. W. Stiles, dated April 11, 1927, on the subject "American referendum, re: American objections to Dr. Poche's (Vienna) propositions in Zoological Nomenclature," the Society adopted the following resolution to be sent to Dr. Stiles:

The American Entomological Society requests the International Commission on Zoological Nomenclature to consider the propositions made by Dr. Poche and report to the Tenth International Zoological Congress (or if not possible then, to the Eleventh Congress) such modifications in the International Rules of Zoological Nomenclature and in the procedure of the Commission as may seem desirable to the latter body.

In view of the complexity of the questions involved in Dr. Poche's propositions and the confidence which this Society feels in the International Commission on Zoological Nomenclature, it believes that the decision can best be made by the Commission in the light of its wide experience.

ORTHOPTERA.—Mr. Rehn made a few remarks on the species of the Acridid genus *Microtylopteryx*, exhibiting specimens of all five species, four Costa Rican and one Panamanian. Slides of representative habitats of certain of the species were shown.

R. J. TITHERINGTON, *Recording Secretary.*

OBITUARY.

OLIVER ERICHSON JANSON, specialist on the Coleopterous group of the Cetoniinae of the world, died at Highgate, England, November 25, 1926, in his 76th year. He was a son of Edward Wesley Janson with whom he was long associated as dealers in entomological specimens, supplies and books, a business which is continued by his two sons at 44 Great Russell St., Bloomsbury, London. His own collecting was done chiefly in Britain, Iceland and Ireland. An obituary notice

and portrait is in the *Entomologist's Monthly Magazine* for January last.

GEORGE TAYLOR PORRITT, a member of the editorial staff of the same *Magazine*, active in the study of British Lepidoptera, Orthoptera and the Neuropteroids, died January 21, 1927, in the 79th year of his age. Obituary notices and portraits are in the April numbers of the *E. M. M.* and the *Entomologist.*

JULIUS SEELHORST MEVES, Swedish lepidopterist, born at Göttingen, October 17, 1844, died at Södertälje, August 30, 1926. An obituary, portrait and bibliography are in *Entomologisk Tidskrift*, volume 47, pp. 248-251.

LEON DIGUET, naturalist and explorer of Mexico (1889-1913) and Oregon (1895), died at Paris, August 31, 1926. He was born at Havre, France, July 25, 1859. His collections, including insects, were made for the Paris Museum, in whose *Bulletin* for 1926, No. 6, a brief account of his life is given.

The death of PROF. CHARLES FULLER BAKER, on July 21, 1927, was announced in *Science* for July 29. He was born at Lansing, Michigan, March 22, 1872, received the B. S. from Michigan Agricultural College in 1892 and the A. M. from Stanford University in 1903. He was successively connected as zoologist, entomologist, teacher or curator with the Michigan (1891-2) and Colorado (1892-7) Agricultural Colleges, Alabama Polytechnic and Experiment Station (1897-9), Central High School of St. Louis (1899-1901), Pomona College, California (1903-04, 08-12), the Experiment Station at Santiago, Cuba (1904-07), the Museu Goeldi, Para (1907-08), the University of the Philippines (1912 on), the Botanical Gardens, Singapore (1917-18) and was botanist on the H. H. Smith expedition to the Santa Marta Mountains, Colombia (1898-99). He also was editor or served on editorial boards, of a number of scientific journals.

Among his entomological papers are *A Preliminary List of the Hemiptera of Colorado*, in association with Prof. C. P. Gillette (1895), *A Revision of American Siphonaptera* (1904), *The Classification of American Siphonaptera* (1905), *A Study of the Caprification of Ficus nota* (1912), etc. He published a series of leaflets entitled *Invertebrata Pacifica*, paged contin-

uously, listing species of insects which he collected on the Pacific slope of North and Central America. To a criticism by Dr. Henry Skinner (Ent. News, xvi. p. 239), of this mode of publication, Prof. Baker made a vigorous reply (*t. c.*, pp. 264-270, 1905), in which is included a list of the contents of the first seven issues of this work. A note in *Science* for August 5 states that by his will "his zoological collection, comprising more than 50,000 specimens, has been given to the Smithsonian Institution and collections of less extent to the universities of Berlin, London, Madrid, Paris, Moscow and Vienna." An appreciation, by Colin G. Welles, chiefly of his work as Dean of the College of Agriculture of the University of the Philippines, has appeared in *Science* for Sept. 9.—P. P. CALVERT.

A biographical sketch of Dr. ALFRED MÖLLER, mycologist, known among entomologists for his observations and experiments on the fungi cultivated on leaf fragments by leaf-cutting ants in Brazil, is published in the 9tes Heft of *Hausschwamm Forschungen* (Jena, Fischer, 1927). It is accompanied by a portrait. Möller was a grand-nephew of Fritz Müller, and was born in Berlin, August, 1860, and died at Eberswalde, November, 1922. In 1915-1920 he published an edition of *Fritz Müllers Werke Briefe und Leben* (3 vols., Jena, Fischer).

The death of KARL BALDUS, assistant in the zoological institute, University of Heidelberg, on June 26, was announced in *Science* for August 5. He had recently published (1924) three important articles on Odonata: *Untersuchungen über Bau und Funktion des Gehirnes der Larve u. Imago von Libellen* (Zeitschr. wiss. Zool. Bd. 121, p. 557-620, 2 taf.), *Experimentelle Untersuchungen über die Entfernungslokalisation der Libellen* (*Aeschna cyanea*) (Zeitschr. vergl. Physiol. Bd. 3, p. 475-505, 13 figg.); and under the same title in *Die Naturwissenschaften*, Jahrg. 12, p. 725-726.

The death of M. L. GEDOELST, professor at the Veterinary School at Cureghem, Belgium, known for his publications on the larvae of Oestridae, was announced at the meeting of the Entomological Society of Belgium, March 5, 1927, but without further particulars.

EXCHANGES

This column is intended only for wants and exchanges, not for advertisements of goods for sale. Notices not exceeding three lines free to subscribers.

These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and only when necessary those at the top (being longest in) are discontinued.

Wanted—Names and addresses of collectors of Lepidoptera in southern states, and in all foreign countries. Collectors communicate—Mrs. Elmer Grubb, R. D. No. 1, Fredericktown, Ohio.

Exchange—Columbian butterflies by 100 monthly arrivals, also N. A. pupae and cocoons. Mrs. Emma Kessler, 499 Manhattan Ave., New York.

Will exchange and buy butterflies and beetles.—Eugene Denby, 2128 Pensacola Ave., Chicago, Ill.

Wanted—For cash or exchange—Entomological News, Vols. 8, 9, 10, each complete, and Vol. 11, No. 5; Psyche, Vol. 11, Nos. 1, 3, 4; Vol. 13, Nos. 2, 3, 4; Vol. 14, No. 6; Vol. 16, Nos. 1, 5, 6. Many good items for exchange.—J. E. Hallinen, Cooperton, Okla.

For Exchange—Lepidoptera of Georgia for those from other states and countries. Send lists to A. G. Richards, Jr., 498 Prince Ave., Athens, Ga.

Cash for Back Issue—Wanted December issue, Vol. 2, 1891, Ent. News. Name your price; or will buy complete Vol. 2. Mr. J. D. Gunder, 849 Linda Vista Ave., Pasadena, Calif.

Wanted—Living cocoons of American Silk Moths: Luna, Cecropia Polyphemus, etc. Offered: Morphos, etc., in exchange or cash. Send particulars before sending.—A. Ford, 42, Irving Road, Bournemouth, Hampshire, England.

NEVER BEFORE OFFERED—THE BLIND BEETLES OF THE AMERICAN CAVES

Anophthalmus tellkampfi, interstitialis, menetriesi, tenuis, pusio, eremita, pubescens, audax, ADELOPS hirtus, also eight new species which will be described. Communicate about the price with:

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